



NWT OFFICE OF THE REGULATOR OF OIL AND GAS OPERATIONS

Office of the Regulator of Oil and Gas Operations

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Mr. Lloyd Doyle
Corporate Operating Officer
Paramount Resources Ltd.
4700 Bankers Hall West
888 3 STREET SW
CALGARY AB 42P 5C5

December 19, 2016

Dear Mr. Doyle:

Approval to Alter the Condition of a Well: Fort Liard F-36 (ACW-2016-003)

The Office of the Regulator of Oil and Gas Operations (OROGO) has received the Paramount Resources Ltd (Paramount) application dated November 7, 2016 for an Approval to Alter the Condition of a Well (ACW) for the abandonment of the Fort Liard F-36 well.

OROGO also received, on December 14, 2016, Paramount's response to its Information Request No. 1, issued on November 28, 2016.

I have issued the requested ACW under Paramount's existing Production Operations Authorization (POA), pursuant to subsection 10(4) of the *Oil and Gas Operations Act*. The ACW remains subject to the terms and conditions of that POA.

Please find attached the signed ACW form with terms and conditions. It has an expiry date of March 31, 2017.

If you have any questions, please do not hesitate to contact me at 867-767-9097 or by email at James_Fulford@gov.nt.ca.

Sincerely,

James Fulford
Chief Conservation Officer

Encl

Bureau de l'organisme de réglementation des opérations pétrolières et gazières

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BUREAU DE L'ORGANISME DE RÉGLEMENTATION DES OPÉRATIONS PÉTROLIÈRES ET GAZIÈRES DESTNO

ATTACHMENT FOR ACW-2016-003

TERMS AND CONDITIONS

For the Approval to Alter the Condition of a Well for the Abandonment of the Fort Liard F-36 Well

1. This approval expires on March 31, 2017.
2. Paramount shall cause the approved work and activities to be conducted in accordance with all applicable legislation including *the Oil and Gas Drilling and Production Regulations* and *the Oil and Gas Occupation Safety and Health Regulations*.
3. Paramount shall cause the approved work and activities to be conducted in accordance with the specifications, standards and other information referred to in its application of November 7, 2016 and subsequent submissions, including the revised work program submitted on December 14, 2016.
4. Paramount shall request approval from the Chief Conservation Officer prior to undertaking any change to or deviation from the authorized work or activities, including but not limited to key personnel, the safety plan, the environmental protection plan and contingency plans.
5. Unless otherwise directed by the Chief Conservation Officer, Paramount shall implement or cause to be implemented all of the policies, practices, mitigative measures, recommendations and procedures for the protection of the environment included in or referred to in the company's application and subsequent submissions and committed to by the company in the land and water board report for land use permit MV2016A0010.
6. Paramount shall provide OROGO with an updated, detailed schedule for this program at least 30 days prior to any work or activity by email at orogo@gov.nt.ca.
7. Paramount shall notify OROGO at least 10 days prior to the start of well abandonment operations by email at orogo@gov.nt.ca.
8. Paramount shall provide all staff and contractors for this program with the OROGO 24 hour Incident Reporting phone number (867-445-8551) prior to commencing any work or activity.
9. Paramount shall submit to OROGO an updated operator contact list for this program prior to any work or activity by email at orogo@gov.nt.ca.
10. Paramount shall submit to OROGO certificates and inspection documents for any service rig, well control and associated equipment (including boilers) at least 10 days prior to the rig commencing work by email at orogo@gov.nt.ca.

11. Paramount shall submit all reports required under the *Oil and Gas Drilling and Production Regulations* in a timely manner to OROGO by email at orogo@gov.nt.ca.
12. Paramount shall submit to OROGO a completed Change of Well Status form 30 days after the service rig release date or when the abandonment operation has finished.
13. Paramount shall submit to OROGO the results of the gas sample tests conducted during Step 2 of the revised F-36 abandonment program submitted on December 14, 2016. Gas sampling and analysis from the surface casing vent shall be conducted in a manner that confirms classification, characterization and geological source determination.
14. Once Paramount has obtained the stabilized shut in pressure (SSIP) of the surface casing vent (SCV), Paramount shall ensure that continual surface casing vent flow (SCVF) monitoring is conducted during the abandonment operations to measure flow-rate of the SCV. The SCV must be left open to atmosphere during operations.
15. Section 17(c) of Paramount's revised well abandonment program, submitted on December 14, 2016, indicates that further squeeze operations may be required to address the SCVF. Paramount may proceed with further squeeze operations as required, as long as the methodology used conforms to the revised abandonment program, without further approval by the Chief Conservation Officer. If such further squeeze operations are required, Paramount shall notify OROGO at least 24 hours prior to conducting the operations.
16. If the SCVF from the well is demonstrated, after testing, to have been addressed by the downhole well abandonment operations authorized by this ACW, Paramount shall:
 - Proceed with cutting and capping the well consistent with its December 14, 2016 revision to the application and ensure that the surface, intermediate and production casing strings are capped at surface with a steel plate that is fastened and installed in a manner as to prevent any potential for pressure to build up within the casings while restricting access to the casing strings at surface;
 - Inspect the well, specifically for any evidence of gas migration, between 5 and 24 months following the completion of the downhole well abandonment operations, at a time when a sampling program can effectively demonstrate that there is no presence of gas migration from the well bore;
 - Notify OROGO no later than 60 days prior to each inspection by email at orogo@gov.nt.ca; and
 - Submit inspection reports to OROGO by email at orogo@gov.nt.ca within 60 days after completion of inspection operations.

17. If no gas migration is identified during the inspection conducted between 5 and 24 months following the completion of the downhole well abandonment operations, the wells will be considered abandoned and no further monitoring will be required. If gas migration is identified, Paramount shall, within 3 months after completion of inspection operations, submit a plan for addressing these issues to OROGO by email at orogo@gov.nt.ca.